ROCKY FLATS PLANT
GOLDEN, COLORADO
REMEDIAL OVERSIGHT SUPPORT

TECHNICAL REVIEW COMMENTS
DRAFT PHASE I RFI/RI WORK PLAN
OPERABLE UNIT 15, INSIDE BUILDING CLOSURES

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region 8, Federal Facilities Remedial Branch
Denver, Colorado

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1.0 INTRODUCTION

PRC Environmental Management Inc. (PRC) has completed a review of the draft Phase I Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI)/Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Remedial Investigation (RI) work plan for Rocky Flats Plant (RFP) Operable Unit (OU) 15. This work plan was prepared by the U.S. Department of Energy's (DOE) Environmental Restoration Program in May 1992. The U.S. Environmental Protection Agency (EPA) requested this review under contract 68-W9-0009, Technical Enforcement Support (TES) 12, work assignment C08108.

This review evaluates whether DOE has prepared the work plan following guidelines provided by EPA (1988) and the Interagency Agreement (IAG) (DOE, 1991). General comments refer to the overall organization and quality of the work plan. Specific comments refer to particular text.

2.0 GENERAL COMMENTS

1. This draft work plan for OU15 contains all the elements required by EPA guidance for work plan organization (EPA, 1988). The elements are well organized and contain nearly all of the information required to direct the work proposed for OU15. Improvements to individual sections of the work plan are proposed in the following sections.

2. Section 2.0 (Site Characterization) discusses the individual hazardous substance sites (IHSS) histories, geology, hydrology, nature of contamination, and the site conceptual model. The site conceptual model subsection contains a more extensive discussion relating the conceptual model to the planned risk assessment than has been included in past work plans.

3. Sections 3.0, 4.0, and 5.0 present chemical-specific benchmarks, data quality objectives (DQOs), and RI tasks, respectively. These sections are substantially the same as those presented in previous work plans and contain the required information.

4. Sections 6.0 and 7.0 contain the work plan schedule and field sampling plan, respectively. The schedule presents the IAG dates. The field sampling plan discusses the sampling

approach for each IHSS at OU15. The field sampling plan should contain more details about the use of the high purity germanium (HPGe) detector in the OU15 evaluation. Additionally, provisions should be outlined for obtaining Level III data from contaminated areas identified by the HPGe surveys.

5. Section 8.0 of the OU15 work plan (human health risk assessment ([HHRA]) includes the essential components presented in the Risk Assessment Guidance for Superfund (RAGS) (EPA, 1989a). However, it is inaccurate and incomplete in specific areas (see specific comments). A major omission is that future land use assumptions have not been adequately defined, and therefore exposure scenarios cannot be rigorously assessed.

   The section discussing the specific criteria to select contaminants of concern (COCs) requires revision. The criteria proposed for selecting potential COCs in the HHRA do not correspond to those endorsed by the EPA in RAGS (1989a). In its current form, human carcinogens and other toxic chemicals could be eliminated from the risk assessment prematurely.

6. Section 9.0 contains the environmental evaluation. As noted in the work plan, the OU15 IHSSs are located inside buildings within the RFP industrialized area. The areas around the outside of buildings will be included in the OU9 ecological studies. Therefore, this approach should adequately evaluate the situation at OU15 so that a separate ecological study will not be required.

3.0 SPECIFIC COMMENTS

1. Section 2.3.3.1, Page 2-24, Paragraph 4. This paragraph states that surface water drainage patterns appear on Figure 1-2. This should be Figure 2-1. Furthermore, drainages and ditches should be labeled on this figure. Drainage away from the buildings of OU15 should also be shown on this figure.

   Rationale: The correct figure numbers should be cited. This figure should identify the drainages and drainage directions discussed in the text.

2. Section 2.5.4, Page 2-35. This section summarizes exposure pathways and states that the listed pathways are derived from Figure 2-6. However, no pathways are listed in this section. The missing material needed to complete this section should be added.

   Rationale: This section is incomplete as written.

3. Table 4-1. This table presents DQOs for OU15. From the way the table is organized, the HPGe survey data apparently will be used in the baseline risk assessment. Because these are only Level II data, they should not be used for risk assessment purposes. This table should be clarified.

   Rationale: Only Level III, IV, or V data should be used for risk assessment purposes.

4. Section 7.2, Page 7-5, Paragraph 2. This paragraph discusses detection limits and states that they appear in Table 7-1. For radionuclides, Table 7-1 only presents detection limits for wet chemical methods in conjunction with alpha spectrometry. Because the radionuclides will be monitored using the HPGe detector, some discussion of the HPGe system capabilities should be included in this paragraph and detection limits should appear in Table 7-1.

   Rationale: The HPGe surveys will be important parts of the proposed work. Therefore, they should be described in more detail.

5. Section 7.2, Page 7-7, Bullet 2. This section describes field screening activities and states that this will include Level II data. Because this level of data is not usable in risk assessments, the field sampling plan should include provisions for Level III sampling using the HPGe system in areas determined to be radioactively contaminated.

Rationale: Level III data or higher will be needed in areas of radioactive contamination to perform the risk assessment.

6. Section 7.3.2, Page 7-11, Paragraph 2. This paragraph discusses the radiation surveys at OU15. From this discussion, it is unclear exactly how the fixed versus removable radioactive contamination will be differentiated. Some discussion should be added to clarify this point. It is also unclear how the wiping to be done for the removable versus fixed radionuclides will affect wipe sampling for volatile organic compounds (VOCs) and metals. This should be discussed in this paragraph.

Rationale: These procedures are critical to the completion of the proposed work. They should be discussed in detail.

7. Section 7.4.1, Page 7-18. This section discusses sample designations; however, it does not include any discussion of how HPGe results will be recorded or stored. Because these data will characterize each IHSS, they should be compiled in a standard manner. Some discussion of the fate of HPGe data should be added to this section.

Rationale: The HPGe results will characterize OU15 in terms of radioactive contamination and should be catalogued.

8. Figure 8-1, Human Health Risk Assessment. The fourth bullet in the box entitled "Exposure Assessment", which reads "estimate exposure pathways", should be deleted or clarified.

Rationale: As currently written, the bulleted item does not describe a meaningful step in the exposure assessment process.

9. Table 8-1, Page 1 of 2. Health Effects Assessment Summary Tables (HEAST) is no longer updated quarterly. It is published annually and only contains toxicity values for chemicals not provided in Integrated Risk Information System (IRIS). The HEAST description should be updated.

Rationale: The information is out of date.

10. Table 8-1, Page 1 of 2, Bullet 8. The date for the (SPHEM) is shown as 1988. This should be changed to 1986. As stated, this is not the current program risk assessment guidance manual. Page xv of the preface to RAGS (Part A) states that, "The Human Health Evaluation Manual (HHEM) replaces a previous EPA guidance document, The Superfund Public Health Evaluation Manual (October 1986), which should no longer be used."

Rationale: The information is incorrect and out of date.

11. Table 8-1, Page 2 of 2, Fourth Bullet. The guidance document titled Guidance for Data Useability in Risk Assessment denoted here as "interim final" has now been finalized. The new title is Guidance for Data Useability in Risk Assessment (Part A), Publication 9285.7-09A. This final version supersedes the interim final document referenced in Table 8-1. Part B of the Guidance for Data Usability in Risk Assessment, which will address the usability of radionanalytical data for baseline HHRAs, is scheduled for publication in fiscal year 1992.

Rationale: The information is incorrect and out of date. Current guidance documents should be referenced so that the HHRA can be as accurate and scientifically defensible as possible.

12. Table 8-1. The table should reference the HHEM, Supplemental Guidance: Standard Default Exposure Factors, OSWER Directive 9285.6-03 dated March 25, 1991.

Rationale: The reference list is incomplete.

13. Section 8.1, Page 8-4, Third Paragraph. Reference is made in the last sentence to a "partial Human Health Risk Assessment." This term is unclear and should be explained.

Rationale: The term "partial human health risk assessment" is not conventional, therefore, it should be defined.

14. Section 8.2.2, Page 8-6. The first sentence of this section refers to 1990 guidance on data usability for HHRAs that has been updated. This section should cite the current guidance as a reference (EPA, 1992).

Rationale: The information in the work plan is out of date. Current guidance documents should be used so that the HHRA can be as accurate and scientifically defensible as possible.

15. Section 8.2.2, Page 8-7, First Full Paragraph. The first sentence states, "Following completion of the Phase I RFI/RI data collection, analysis, and validation, new data will be evaluated to determine if the Phase I RFI/RI data that can be used to support a quantitative Human Health Risk Assessment will be identified." This sentence does not make sense and should be rewritten for clarity.

Rationale: It is important that the work plan discuss the relationship between historical data and new data and how they will be used together.

16. Section 8.2.2, Page 8-8. The last sentence at the top of the page states, "It is unlikely that risks resulting from exposure to tentatively identified compounds (TICs) cannot be characterized at this time because of the absence of specific contaminant identity and available toxicological information." This sentence is confusing and should be clarified.

Rationale: The double negative "unlikely...cannot" indicates that risk from TICs can be characterized, and this is not likely.

17. Section 8.2.2, Pages 8-7 and 8-8, Second Paragraph. The paragraph discusses TICs and how they will relate to the HHRA. It states that "if only a few TICs are reported relative to other contaminants, or if they are unrelated to RFP, they will be excluded from the HHRA." This discussion is premature. All contaminants detected at least once should be included in the HHRA in the section containing a data summary of chemicals detected in each medium.

Decisions regarding the frequency of detection and the relationship of chemicals to the site should not be made at this time. These decisions must be deferred until COCs are selected. During this time, chemicals detected less than a pre-established frequency of detection benchmark, usually set at 5 percent, can be eliminated from the risk assessment.

Furthermore, chemicals lacking toxicity values should not be unilaterally excluded from the risk assessment before EPA Region 8 toxicologists are notified. If it is not possible to derive toxicity values for particular chemicals, a qualitative discussion of potential adverse effects is required.

Rationale: COCs should be selected in strict accordance with the guidelines presented in RAGS. Rationale for any deviations from this guidance should be documented and detailed.

18. Section 8.2.3, Page 8-10, Second Paragraph. While it may be appropriate to eventually reduce the number of chemicals carried through the risk assessment process, the Environmental Evaluation Manual (EPA, 1989b) is not the appropriate guidance manual to use for this process in a HHRA. EPA (1989a) discusses in Chapter 5 the use of a concentration-toxicity screening in addition to other considerations.

Rationale: The title of this section is "Human Health Risk Assessment Plan," and the procedures presented should be appropriate and applicable to HHRAs since there are differences between human health risks and ecological effects.

19. Section 8.2.3, Page 8-11. The list of applicable or relevant and appropriate requirements (ARARs) should include the Safe Drinking Water Act (SDWA) maximum contaminant levels (MCLs) and any other promulgated requirements.

Rationale: The list of ARARs should be comprehensive.

20. Section 8.2.3, Page 8-11. The text is not clear as to how the comparison with ARARs will affect the selection of COCs. Even though a chemical concentration is below an MCL, for example, it does not necessarily indicate that it should not be carried through the risk

assessment process. For instance, the cancer risk at the established MCL for arsenic is 1 X 10^{-3}.

Rationale: ARAR's relationship to COC selection should be clear.

21. Section 8.3.1 on Page 8-13, and Section 8.3.4 on Page 8-16. The fourth sentence indicates that "residential and occupational exposure pathways through ingestion, inhalation or dermal contact with site-related contaminants will be considered for evaluation..." Exposure scenarios should include current and future industrial/occupational exposures, unless contaminants breach the existing structures or the OU boundary.

Rationale: The proposed land use scenarios should include present and future potential receptors.

22. Section 8.3.5, Page 8-17. The second paragraph discusses reasonable maximum exposure (RME) concentrations and determining the appropriateness of geometric or arithmetic means to estimate the RME concentrations. The Supplemental Guidance to RAGS; Calculating the Concentration Term, EPA Publication 9285.7-081, May 1992, should be consulted when making this determination.

Rationale: Current guidance should be used so that the HHRA can be as accurate and scientifically defensible as possible.

23. Section 8.3.6, Page 8-18, Third Paragraph. The citation for the Standard Default Exposure Factors guidance document should be corrected to EPA, 1991.

Rationale: EPA, 1989c is the wrong citation for a March 25, 1991 document.

24. Section 8.3.6, Page 8-19. The second paragraph states that dermal exposures will be calculated and compared with those calculated for ingestion, but does not state how the dermal exposures will be calculated. This information should be provided, and the interim dermal exposure guidance should be referenced (EPA, 1992c).

Rationale: The text should include information on how dermal exposures will be estimated and whether reference doses and slope factors will be adjusted.

25. Section 8.4, Page 8-22, First Paragraph. Since IRIS is an on-line database, the citation in the text for 1987b is inappropriate. IRIS should be consulted every time a risk assessment is prepared. IRIS files from 1987 are likely to be out-of-date.

Rationale: Current guidance should be used so that the HHRA can be as accurate and scientifically defensible as possible.

26. Section 8.4, Page 8-22. This section discusses sources of toxicity values. This discussion should also include contacting EPA's Environmental Criteria and Assessment Office (ECAO) for chemicals with no verified toxicity values.

Rationale: Current EPA guidance (EPA, 1989a) recommends contacting the ECAO if IRIS and HEAST do not provide toxicity values for COCs.

4.0 REFERENCES

DOE, 1991, United States Department of Energy, Federal Facility Agreement and Consent Order (Interagency Agreement [IAG]: DOE, EPA, CDH), Washington, D.C. January 22, 1991.

EPA, 1988, United States Environmental Protection Agency, Interim Final, Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Washington, D.C., EPA/540/8-89/004, OSWER Directive 9355.3.01, October 1988.

EPA, 1989a. Risk Assessment Guidance for Superfund, Volume 1 – Human Health Evaluation Manual (Part A). Interim Final. EPA/540/1-89/002. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Washington, D.C.

EPA, 1989b. Risk Assessment Guidance for Superfund, Volume 2 – Environmental Evaluation Manual. Interim Final. EPA/540/1-89/001A. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Washington, D.C.

EPA, 1990. Corrective Action for Solid Waste Management Units at Hazardous Waste Management Facilities. Proposed Rule. Federal Register 55: 30798-30884. July 27, 1990.

EPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors. OSWER Directive 9285.6-03. March 25, 1991. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency and Response, Washington, D.C.

EPA, 1992a. Guidance for Data Useability in Risk Assessment (Part A). Publication 9285.7-09A. May 1992. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency and Response, Washington, D.C.

EPA, 1992b. Supplemental Guidance to RAGS: Calculating the Concentration Term. Publication 9285.7-08I. May 1992. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency and Response, Washington, D.C.

EPA, 1992c. Dermal Exposure Assessment: Principles and Applications. Interim Report. EPA/600/8-91/011B. U.S. Environmental Protection Agency, Office of Health and Environmental Assessment, Washington, D.C.